

Breast Cancer, Common Chemicals and Cause: Better Safe Than Sorry



Nearly 100 chemicals found in everyday products — pesticides, cosmetics, gasoline and pharmaceuticals — cause breast cancer in animals, report researchers in the journal *Cancer*. Cutting back on the use of those chemicals, they said, would likely reduce human breast cancer. The disease is the leading killer of middle-aged American women.

Experts say that family history and genes are responsible for a small percentage of breast cancer cases but that environmental or lifestyle factors such as diet are probably involved in the vast majority.

"Overall, exposure to mammary gland carcinogens is widespread," the researchers wrote in a special supplement to the journal *Cancer*. "These compounds are widely detected in human tissues and in environments, such as homes, where women spend time."

The researchers looked only at studies involving animals, and didn't evaluate literature involving links between the chemicals and human cancers. The results are a perfect reflection of the tension at the center of chemical regulation:

Toxicologists say that other mammals, such as rats and mice, often develop the same tumors as humans do, and that animal tests are efficient means of testing the effects of chemicals. Environmental regulators, however, often want conclusive human data before taking action.

The latter sentence ought to say "environmental regulators and chemical manufacturers," as it's industry pressure that most desperately wants chemicals pulled only when they pose a blatant, obvious danger. But the problem with that mentality is that the dangers of chemicals can be very hard to evaluate.

There are three levels of evidence relevant to this sort of debate:

biological, animal and epidemiology. At the first level, scientists might add the chemical to a dish of human cells and observe what happens. At the second level, scientists look at the effects of the chemical on animals. At the level of epidemiology, scientists look at large populations of people exposed to these chemicals, crunch the numbers and look for patterns.

Epidemiology is what drives public health, and it's also the most important level of evidence for regulators — and there are times, such as when fighting disease, that epidemiology is vital. But it does have limitations. Trying to tease out whether a single chemical causes cancer in people can be very difficult to do in a scientifically acceptable way.

Testing chemicals directly on people is, thankfully, not permitted (though it's [still done](#) by some chemical manufacturers). Looking at large populations is tricky because of all the confounding variables — and even if these can be controlled, tiny but important effects can be easily. If users of a chemical have a .05% greater chance of developing cancer than non-users, epidemiology won't likely link cancer to the chemical — but scale that effect up to hundreds of millions of people, and the impact is profound. Multiply that by perhaps dozens of similarly subtle carcinogens, and — well — you might very well have a leading cause of death in women.

Does this mean that epidemiology should be thrown out the window? Of course not. But it does mean that, when clear evidence of animal harm exists, and the risk of removing a chemical from human products is minimal — has a [PBDE ban](#) sent Sweden up in flames? — then the precautionary principle ought to win. Except where they're absolutely necessary, get these chemicals out of our lives.

[Common chemicals are linked to breast cancer](#) [Los Angeles Times]

Image: Chris Dodson